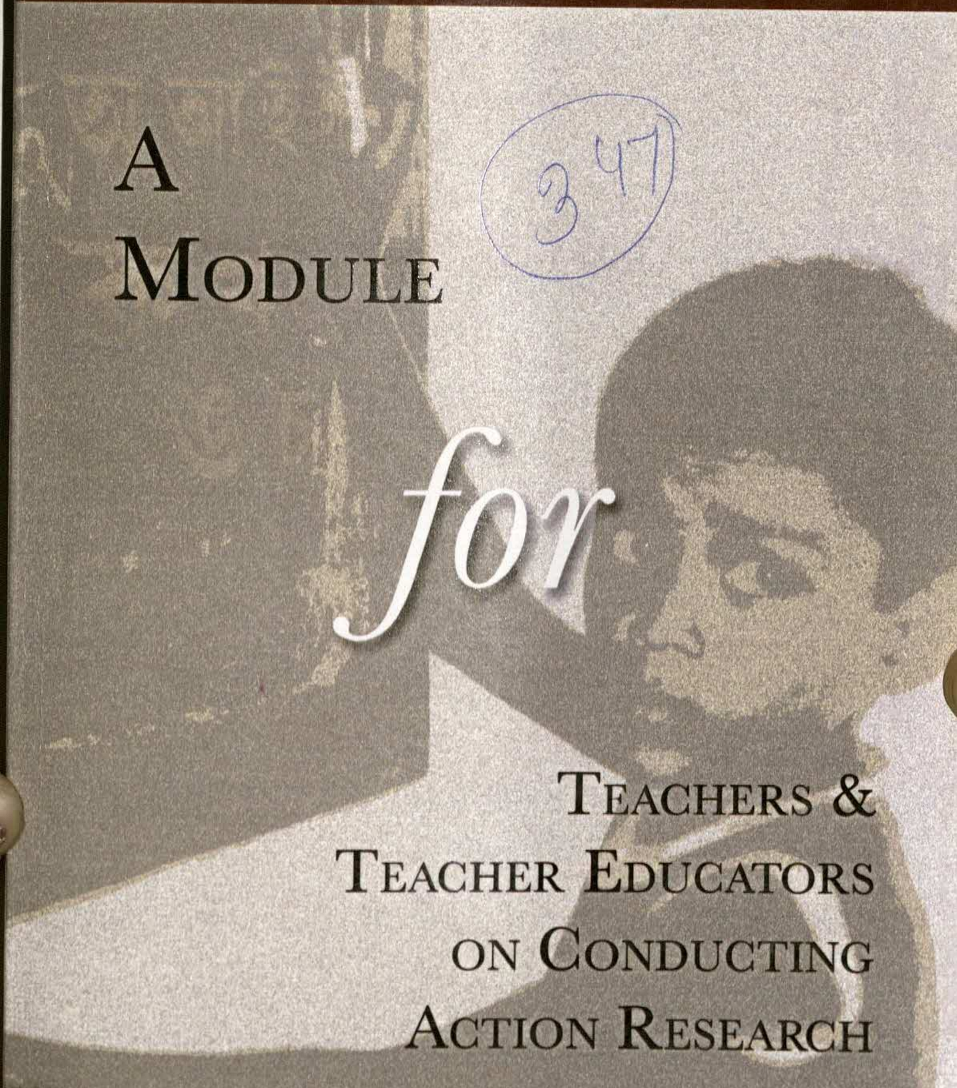

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A MODULE *for* TEACHERS & TEACHER EDUCATORS ON CONDUCTING ACTION RESEARCH

STATE COUNCIL OF EDUCATIONAL
RESEARCH & TRAINING
GOVERNMENT OF WEST BENGAL

MARCH 2013

A MODULE FOR
TEACHERS AND TEACHER EDUCATORS
ON
CONDUCTING ACTION RESEARCH

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A MODULE FOR TEACHERS AND TEACHER EDUCATORS ON CONDUCTING ACTION RESEARCH

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FOREWORD

Action Research has long been a trusted implement for policy makers, administrators, teachers and practitioners at varied levels who regard it as a manageable process bearing results which suggest immediate and direct application in their respective fields. Kurt Lewin is generally credited as the person who coined the term 'Action Research': *The research needed for social practice can best be characterized as research for social management or social engineering. It is a type of action-research, a comparative research on the conditions and effects of various forms of social action, and research leading to social action. Research that produces nothing but books will not suffice.* (Lewin 1946, reproduced in Lewin 1948: 202-3)

The innate feature of Action Research is that it incorporates a series of self-reflective inquiries in order to improve the situation where the researcher perceives his/her dissatisfaction. Being iterative in nature, the process of Action Research spirals through the usual steps of identification of problem, determining objectives, planning a methodology, research designing, intervention, observation, inference and further reflection, thereby moving up to the next level of the spiral.

In our country, both in national level and state level, Action Research is a field where experts have deliberated and contributed toward refinement of processes and practices. Action Research is a strategy that educators can use to study educational issues, implement change and document professional growth. SCERT (WB) has identified a scope in developing a module which can be used as a reference material by the teachers and teacher educators as well, for sensitizing them on strategies to be adopted for bringing about an overall improvement in their work, particularly in the context of classroom teaching-learning process. The chapters of the present module have been authored by the Editor along with the Coordinators and the Consultants in this project. The module will be considered to have served its purpose if it enables the teachers and teacher educators to address the emerging challenges in an evolving modern day classroom through their own reflective practices, resulting in empowerment of practitioners, instilling flexibility and novelty in practices leading to an overall enhancement of quality.

Dr. Chhanda Ray
Director, SCERT (WB)

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CHAPTER 1

Introduction

1.1 ACTION RESEARCH

Action research is a strategy initiated to implement organisational change especially in complex social situations where the people, whose lives or circumstances are being changed need to be involved in designing and implementing the change that affects them. Action research is undertaken by large organizations or institutions or individuals in order to improve their strategies, practices and knowledge of the environments within which they practice. It is known by many other terms such as participatory research, collaborative inquiry, emancipatory research, action learning, action science and contextual action research. Some researchers also used the term action inquiry technology in order to embrace a number of strategies for learning and research through systematic inquiry which used a recurring cycle of action, reflection, and hypothesis. In a simple sense, action research is "learning by doing" in which a group of people identify a problem, do something to resolve it, see how successful their efforts were, and if not satisfied try again. In this context, it has to remember that the approach for action research is different from the common problem-solving activities that we all engage in every day. Different researchers have defined action research in many ways. Some definitions of action research are enlisted in the following.

- **Action Research** *is a form of investigation designed for use by teachers to attempt to solve problems and improve professional practices in their own classrooms. It involves systematic observations and data collection which can be then used by the practitioner-researcher in reflection, decision-making and the development of more effective classroom strategies.*

  – Parsons and Brown (2002)

- **Action Research** *is a fancy way of saying let's study what's happening at our school and decide how to make it a better place.*

  – Emily Calhoun (1994)

- **Action Research** *is a natural part of teaching. Teachers are continually observing students, collecting data and changing practices to improve student learning and the classroom and school environment. Action research provides a framework that guides the energies of teachers toward a better understanding of why, when, and how students become better learners.*

  – A. Christine Miller (2007)

- **Action Research** *is simply a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out.*

  – Carr & Kemmis (1986)

A more generalized definition of Action Research is as follows.Action research is a process in which participants examine their own strategies and practices systematically and carefully using the techniques of research in order to improve their strategies, practices and the knowledge of the environments within which they practice. It is a research aims to contribute to practical concerns of people in an immediate problematic situation or in a reflective process of progressive problem solving and improves the way they address issues and solve problems. Action research involves the process of actively participating in an organization change situation during conducting research. The major characteristics of action research are enlisted in the following.

- Action research is *situation specific* and it enables to examine one's own situation.
- It is a *participatory process* and allows for inputs from all participants who are involved in the process.
- Action research is a *collaborative approach* where peoples would work with their colleagues and other participants to answer research questions.
- It allows for an *ongoing process of self-evaluation* where one appraises himself/herself and his/her own performance.
- In action research, it has been assumed that participants already have a great deal of *professional knowledge* and can continue to develop this knowledge and improve their practice.

1.2 THE ACTION RESEARCH PROCESS

The action research process generally involves a series of five steps, namely, **Planning, Action, Observation, Evaluation** and **Reflection**, and **Amendment** or **Improvement**. Depending on the research question, purpose of the study and number of researchers involved these steps can be further expanded. A brief description of these steps is given below.

- **Planning** – In planning step, the issue or the problem is identified and the research questions are begun to formulate. For example, one teacher can start with the problem how he or she can improve his/ her own teaching method in educational system. It is better to start with a simple, manageable project or a small part of a big project rather than a big complicated problem because we cannot change everything at once. Careful planning in this step will limit false starts and frustrations.
- **Action** – The objective of the action step is to develop new strategies or actions that should be applied in existing practices for improvement or betterment. In this step, the collection of data is an important and initial step in order to determine what actions should be taken for the existing practices. There are a wide variety of data collection methods such as interviews, questionnaires, observation, journals, case studies, photos, memos, and so on. It has to be remember that the most appropriate and relevant data for the issue being researched are to be collected. In order to make the data useful

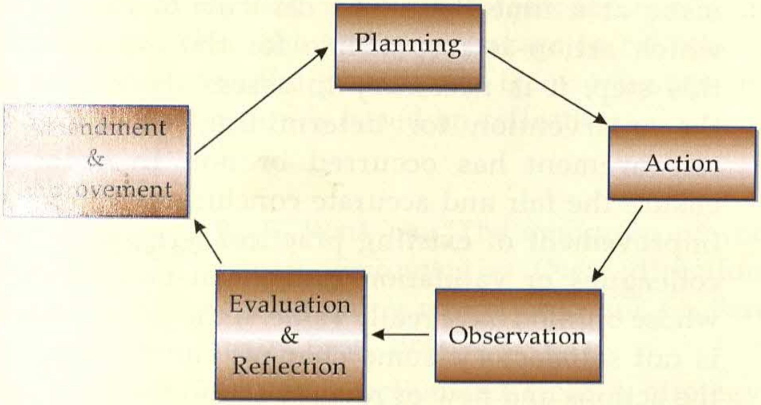

Figure 1 : *The Action Research Process*

for identifying trends and themes, the proper and necessary organization of data is also done in the action step.

- Observation – In this step, collected data are further analyzed and major themes are identified. Some of the data are quantifiable and can be analyzed without using statistics or technical assistance. Data that are not quantifiable can be reviewed holistically and important elements or themes can be noted.
- Evaluation and Reflection – Using the information from the collected and processed data and depending on the current literature, a plan of action is designed in evaluation and reflection step that allows to make a change on the existing practices and to study that change. Only one variable should be altered at a time, because if several changes are

made at a time it will be difficult to determine which action is responsible for the outcome. In this step, it is necessary to assess the effects of the intervention for determining whether the improvement has occurred or not. In order to ensure the fair and accurate conclusions about the improvement of existing practices, critical friend, colleagues or validation group can be consulted whose opinion have really value. If the improvement is not satisfactory, some changes can be made to the actions and new or revised action plan can also be developed in this step to elicit better results.

- **Amendment and Improvement** – In this step, the new improved technique is implemented and documentation is done. Moreover, data collection is also performed on the performance of the new improved action. It has to remember that action research is empowering, that is, it allows us to change the way we teach. Thus, it is necessary to continue to make changes all the time and to grow as a professional.

The steps involved in a single spiral loop of action research process are illustrated in the following figure.

The action research process lends itself to a spiral of cycles with the researcher reflecting on each step of the process. After studying the results of the first action the researcher plans the next series of actions. Each reflective phase yields more information about the issue and increases the researcher's understanding.

The most important skill the researcher needs in action research is the ability to engage in reflection. Reflection moves the practitioner from one stage to the next; thus, action is based on reflection.

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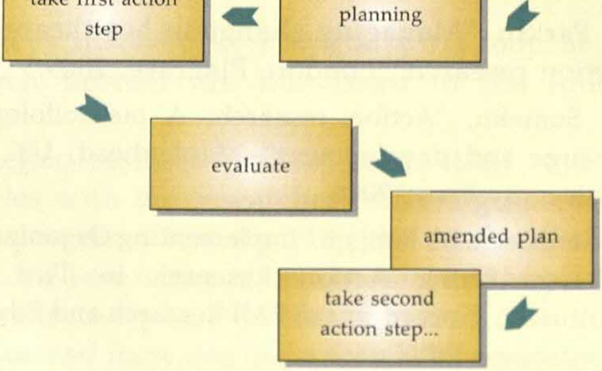
CHAPTER 2

Action Research in Education

2.1 INTRODUCTION

Act In recent times, conducting action research is becoming an essential practice for social organizations for solving their immediate problems in order to ensure the overall development of the organization as well as the competency of the individual concerned. There are two distinct trends for practicing action research. The first one is the British tradition that view the action research as research oriented towards the enhancement of direct practices, mostly concerned with education. The second one is adapted by the


identifying a general or initial idea
reconnaissance or fact finding
planning
take first action step
evaluate
amended plan
take second action step...

researchers in USA and it is linked into traditions of citizen's action and community as a whole.

Kurt Lewin (1948), pioneer in the field and coined the term 'action research', believed that social practices could only be understood and changed by involving the practitioners themselves throughout an inquiry. According to Lewin, the research needed for social practices can best be characterized as research for social management or social engineering and it is a type of action-research, a comparative research on the conditions and effects of various forms of social actions, and research leading to social actions. Lewin's approach involves a spiral of steps, each of which is composed of a circle of planning, action and fact-finding about the result of the action. The basic cycle of action research involves the following.

The first step is to examine the idea carefully in the light of the means available. Once the general area of the concern is chalked out, it is required to focus specifically on something one can do something about. There may be many potential starting points within the inquiry. In order to get the starting point, the researcher may need to spend sometimes looking at his or her practices in a little detail, noting the various aspects which might be changed. This period of focusing is known as 'reconnaissance'. After planning and execution of the first step one must evaluate the outcome for required amendment to reach to the objective. Usually this planning has also somewhat modified the original idea.

Action Research is a term that we hear quite often in today's educational system and typically it is undertaken in a school setting. In the educational system perspective, action research is a collaborative activity among colleagues searching for solutions to everyday, real problems experienced in schools, or looking for ways to improve instruction and increase student achievement. To practice teaching learning in an institutional setup, a teacher can face lot of problems, each of which is unique in nature. In this context, the periodical review is very much required to determine whether the teacher is accomplishing the objectives set by him/her in consonance with the objectives of the institution. In real situation, it is impossible to improve teaching without understanding the dynamics of the situation in which the teaching is carried out. Students, classrooms all may vary, as do the management structures, schemes of work, course or programs and assessment procedures which impose structure on them. By thoroughly searching the problem at the root, it is possible to bring out the appropriate solution. Action research is most instrumental in searching and solving the specific problem and achieving the educational objectives.

2.2 CONCEPT OF EDUCATIONAL ACTION RESEARCH

Educational action research is an educational way of understanding education, with its own distinctive educational values underpinning it (Lomax-1986). Action research assumes that research is a natural part of teaching and builds on the understanding that teaching is informed by personal knowledge, trial and error, reflection on practice and conversations or dialogues with colleagues and students. The aim of action research can range from a desire to improve the learning environment for all, to address the essential educational questions, advocate for all learners, work for social justice and human rights, educate for insight and for a peaceful and livable society. The efficiency of action research as an instrument to improve pedagogical skills in institutional setup is globally accepted.

In other words, action research in education is inquiry-based research conducted by teachers that follows a process of examining existing practices, implementing new practices and evaluating the results, leading to an improvement cycle which is beneficial for both students and teachers. Action research is also known as practitioner research, teacher research, site-based research, and action science. More clearly, disciplined reflective inquiry in the context of focused & systematic efforts to enhance the understanding of educational policies, practices, interventions and programs, and to generate and sustain improvements in schools is action research.

According to Teachers' Network (Ministry of Education, Singapore) publication on Learning Circles,"...teacher-initiated classroom investigation which seeks to increase the teachers' understanding of classroom teaching and learning, and to bring about change in classroom practices". In the context of education, John Elliott (1991) opined "Action research is the process through which teachers collaborate in evaluating their practices jointly; raise awareness of their personal theory; articulate a shared conception of values; try out new strategies to render the values expressed in their practices more consistent with the educational values they espouse; record their work in a form which is readily available to and understandable by other teachers; and thus develop a shared theory of teaching by researching practices."

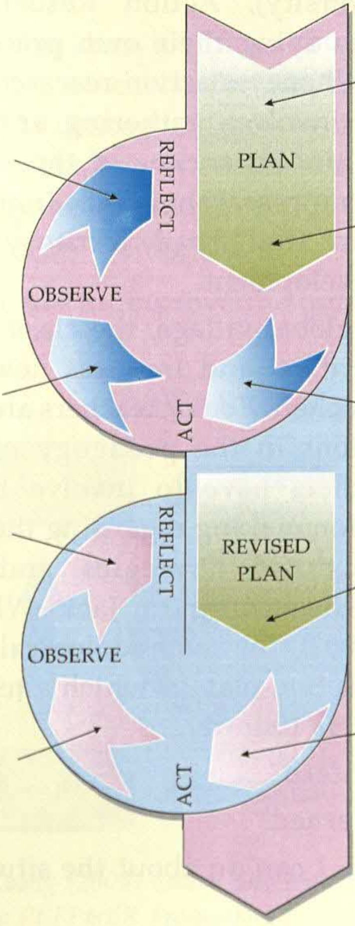
Stringer (1999) suggested that the action research process works through three basic phases as listed in the following:

Look - Building a picture and gathering information. During evaluation, the teacher (researcher) has to define and describe the problem to be investigated and the context in which it is set. The teacher (researcher) has also to describe what all the participants (educators, group members, educational administrators etc.) have been doing.

Think – Interpreting and explaining. The teacher (researcher) has to analyze and interpret the situation during evaluation and has to reflect on what participants have been doing. The teacher (researcher) must look at areas of success and deficiencies (if any), issues and problems.

Act – Resolving issues and problems. In evaluation, the teacher (researcher) has to judge the worth, effectiveness, appropriateness, and outcomes of the activities. Teacher (researcher) acts to formulate solutions to any problem.

Thus, whenever the teacher faces any problem he/she can undertake action research which is cyclical in nature and each cycle involves planning, action, observation and reflection. This is illustrated by the following model as advocated Kemmis and McTaggart (1988) and exemplified by McNiff (1988).



My students think that science means recalling facts rather than a process of enquiry. How can I stimulate enquiry in my students? Change the curriculum? Change my questioning? Settle on questioning strategies

Shift questioning strategy to encourage students to explore answers to their own questions

Try questions which let students say what they mean, what interests them

Continue general aim but reduce number of control statements

Use less control statements for a couple of lessons

My enquiry questioning is disrupted by my need to keep control in ways the class expects

Record questions and responses on tape for a couple of lessons to see what is happening. Keep notes of my impressions in a diary

Enquiry developing but students are more unruly. How can I keep them on track? By listening to each other, probing their questions? What lessons help?

Record on tape questioning and control statements. Note in diary effects on student behaviour

A teacher is a true professional when he/she is a reflective practitioner; he/she is a lifelong learner who creates professional knowledge and continuously improves the quality of teaching and learning. Thus, Action Research is a means to achieve the goal in teaching-learning process. According to Tom Russell (Queen's University), Action Research refers to professionals studying their own practices in order to improve it. Whenever action research is conducted in teaching, it involves gathering and interpreting data for better understanding of the aspect of one's teaching. Action research is an important recent development in the broad territory of teachers' professional development.

In the present global village, the class room is more complex and critical and imposes new pedagogical challenges to teachers. Today, teachers are in apposition to make decisions in the pedagogy of a classroom situation. Teachers have to involve themselves in informed decision making regarding the effectiveness of the instructional strategies and educational interventions. According to Jack Whitehead and Jean McNiff (2002), the methodological approach for developing an action plan in which a teacher must be sensitive to are as follows.

What is my concern?

Why am I concerned?

What do I think I can do about the situation?

What will I do?

How will I show whether I am influencing the situation for betterment?

How will I produce evidence of my influence?

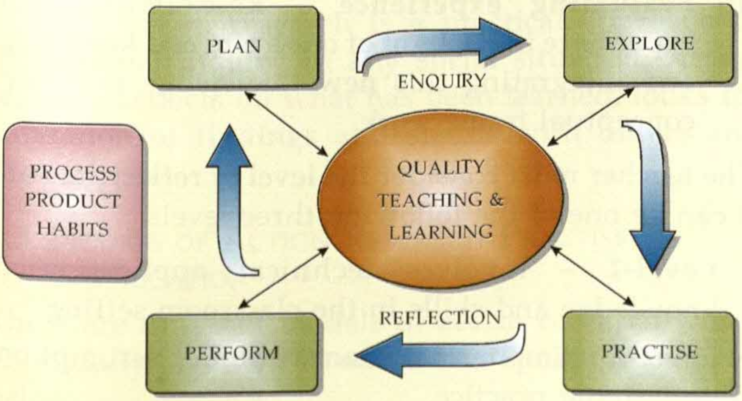
How will I ensure that any claims I make are reasonably fair and accurate?

What will I do then?

Therefore, teacher has to follow a specific method for doing action research for his/her professional development. The concept of framework of professional development for teachers based on action research can be elaborate by the following 'PEPP & ER' model as advocated by Peggy Leong (2004).

P stands for PLAN to improve the quality of teaching and learning

PEPP&ER



Source : *Peggy Leong (2004) Embarking on a Learning Journey : Developed the PEPP&ER Framework for Action Research*

E stands for EXPLORE to discover new and innovative strategies

P stands for PRACTICE to carry out the plan agreed upon and

P stands for PERFORM to reflect on learning experience and share findings which is done by Enquiry and Reflection.

Thus, action research involves shuttling back and forth between thinking and action. Reflection is the bridge between thinking and acting. Nature of reflection can be as follows.

i) **Returning to experience** – Recalling or detailing salient events.

ii) **Attending to (or connecting with) feelings** – Using helpful feelings, removing or including obstructive ones.

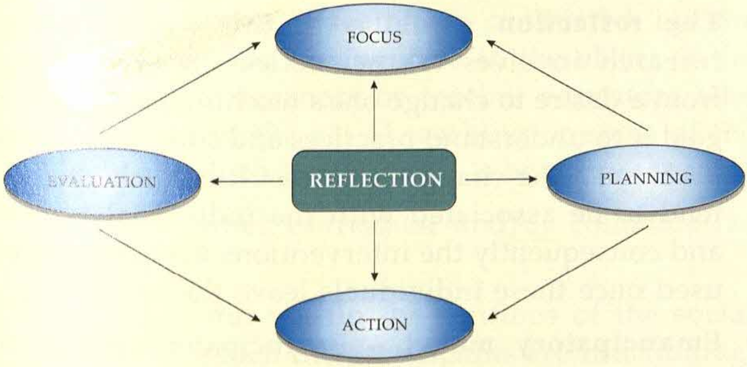
iii) **Evaluating experience** – Re-examining the experience in the light of one's aim and knowledge and integrating this new knowledge into one's conceptual frame work.

The teacher must consider the level of reflectivity and it can be one of the following three levels.

- **Level-1** – Involves technical application of knowledge and skills in the classroom setting.
- **Level-2** – Emphasizes examination of assumptions underlying practice.
- **Level-3** – Emphasizes moral and ethical issues of practicality to values and beliefs.

In simple sense, action research is looking back on experience to improve practices, learning in the midst of practices and making decisions about what to do. Thus, action research cycle based on reflection and it can be represented by the following simple model.

ACTION RESEARCH MODEL



In brief, action research is a practical approach to professional inquiry in any social situation. Action research reflects on what has been learned, looks for validation of findings and shares with others and disseminates.

2.3 MODELS OF ACTION RESEARCH PRACTISED IN EDUCATION

There are different models of action research which are usually practiced in education. These are enlisted below.

- **The problem solving model** – This model of action research is initiated by a teacher who identify a specific problem and try to solve it based on the relevant information gathered in the classroom. Once the problem is solved, the teacher evaluates the effectiveness of the intervention. In this case, action research involves less collaboration and is usually undertaken by a single teacher in a single classroom.

- **The reflection model** – In this model, action research involves teacher reflection often stems from a desire to change one's teaching practice. The goal is to understand practices and solve immediate problems. The changes that result in such projects tend to be associated with the individual teacher and consequently the interventions may cease to be used once these individuals leave the system.
- **Emancipatory model** – Emancipatory model of action research works for social changes. The major objective of this model is to decrease the gap between the day-to-day problems encountered by practitioners and the theories used to explain them. Another objective of this model is to raise the collective consciousness through a three-parted social critique of theory, enlightenment and action.

From the above mentioned different approaches of action research, it is clear that the boundaries of each of the research model is not rigid rather flexible and overlapping with each other in many areas. The more complex or comprehensive a problem, the more likely it would be to encompass critical thinking, reflection and problem solving within it. Therefore, holistic approach for performing action research is essential in a holistic school.

2.4 NATURE OF EDUCATIONAL ACTION RESEARCH

The nature of educational action research is described below

- Education action research is conducted by the practitioners who are involved in the object of the research (like teachers or teacher educators who are engaged in the act of teaching or some of the aspects on which the research is being conducted)
- It may be either individual and/or collaborative effort.
- It is carried out within the confines of the social situation in which the participants are functioning. In educational scenario, such type of researches is conducted by the teachers within the school in which they are employed.
- The method in educational action research predominantly relies on self-reflection of the participants (researchers) rather than on rigorous statistical analysis.
- Educational action research is practical and directly relevant to an actual situation in the working world of teachers. In this research, the subjects are the students in the classroom, the staff, or others who are primarily involved in the school.
- Educational action research is flexible and adaptive.

It allows changes during the trail period and sacrifices control in favour of responsiveness and on the spot experimentation and innovation.

Since the situation and the problem are unique in educational action research, action research is situation based and context specific in education. The outcomes that educational action research produces are not always generalizable or may not be general at all.

2.5 SCOPE AND PURPOSE OF ACTION RESEARCH IN EDUCATION

During teaching, a teacher can face several problems for which he/she does not have any ready-made solutions. In this particular situation, it is necessary that the teacher would discover a befitting solution which leads him/her to conduct action research thereon. Thus, action research has wider scope in education sector especially in teaching-learning process.

According to Carr and Kemmis (1986), there is huge scope of action research in education in the following areas:

- Action research in education can be applied for the improvement of the practices.
- It can be conducted for the improvement of the understanding of practices.
- It can be also conducted for the improvement of the situation in which the practices take place.

More analytically, action research can serve the following purposes:

- Action research facilitates change in classrooms and schools.

- It fosters disciplined and systematic inquiry in practices.
- It empowers individuals via collaborative teams.
- Action research encourages reflection on practices.
- It enhances capacity of teachers to influence changes
- Action research can be considered as a vehicle for creating professional learning communities in education.
- It seeks to narrow gap between vision and practice.

2.6 DEFINING THE TITLE OF ACTION RESEARCH

It is indeed that the teacher is like a gardener who has to provide different treatment to each individual unique student instead of always providing standardized treatment to all. Depending on the various situations and problems, action research empowers the teacher to address the requirement more effectively. Action research has the following impacts in education.

- Enhanced professional development
- Enhanced capacity to influence change
- Informed decision-making about effectiveness of instructional strategies and educational interventions
- Student learning and achievement
- Continuous school improvement

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CHAPTER 3

Steps for Conducting Action Research

3.1 INTRODUCTION

Educational researches are basically classified into two different categories, namely, fundamental researches and applied researches. Action research is one kind of applied research mostly related with classroom teaching learning problem and involves the matters related to improving school practices, professional improvement, preparation of good textbook, development of curriculum, problems related to administration, and so on. Action research in education can be organized by a researcher who is attached with the profession specially Teachers, Headmasters, Educational Administrators like School Inspectors or District Inspectors and Educational Researchers. All the researchers have to follow some scientific procedures or steps which may lead him/her to solutions or probable solutions.

Before starting any exercise the researcher must have to focus the area he/she wanted to address and how he/she is going to organize the action research. W.A. Stephen (2006) has mentioned the following golden rules for selecting a topic in action research.

- Keep it manageable – keep the focus in small area or in small scale.
- It should be interesting to you – you may need some perseverance to see the inquiry through!

- It should be workable – you are not stumped for ideas, but can identify ways in which you might have a go at addressing your question.
- It should not be too disruptive to normal routines (think not just of your own, but also of others whom your actions might affect).

3.2 Steps of Action Research

In order to pursuing the action research in education, teachers or researchers must be familiar with the steps for conducting action research which are discussed below. The reader must bear in mind that these steps, although attempted to be made exhaustive, are suggestive. One can, judging by the study at hand, decide on the appropriate steps to be followed. The very genesis of Action Research renders this flexibility in its design.

3.2.1 Identification and Selection of Problem

The first step in action research is the identification and selection of problem. In this step, a researcher or teacher or administrator identifies and selects a problem related to his/her teaching learning procedures or examination system or newly introduced curriculum and text books or organizational activities or co-curricular activities or location and community related problem or problem related to administration and so on. Hence, the researcher must be very keen to observe the problem and (s)he should be also sensitive, having practical approach to solve the problem. For selecting the problem the following actions may be taken.

- Consider students, practices, and programs
- State research purpose(s)/question(s) as below :

    I would like to improve...

    I want to learn more about...

    An idea I would like to try out is...

    Something that I think would make a significant difference is ...

3.2.2 Consultation and Literature Review

The second step in action research is consultation and review of literature. In this step, the following actions can be taken.

- Identify key terms
- Pose a question that you want to be answered
- Locating resources/literature – primary and secondary sources, meta-analysis, summaries, abstracts, indexes, journals, and books
- Web-quests

In this case, the consultation and review of existing research articles will help the researcher to understand his or her problem completely and to plan research design. Moreover, the researcher will be able to analyze his/her findings in the light of the findings of previous researches.

3.2.3 Defining the Title of Action Research

After identifying the problem, the researcher must define the problem with statement or determine a suitable title for the actual problem with keywords in order to provide a crystal clear view about the problem. Some examples (Koul, Koul, Prasad, 2006) of the research titles are as follows:

- Regularising the Irregular Children in Erosion Affected Zones – A Micro Level Action Research in West Bengal.
- Reusing of Polythene Bags as Learning Materials for the Elementary Classes.
- Developing English Vocabulary Skill among the Primary School Children through Teacher Monitoring: Vocabulary Game.
- Developing Communication Skill of the Learners of Class-IV in English by Regular Monitoring of Learners' Performance.

3.2.3 OBJECTIVE OF THE STUDY

In this step, objectives or goals of the study are stated with action verbs. These objectives must be specific, achievable and relevant to the study. For example, the impact must be relevant to the achievement in first language, mathematics, second language as well as in science in the first study as mentioned above to study the impact of numbers of unit test (Frequency) on the results or achievement of the learners.

3.2.5 DELIMITATION OF THE PROBLEM

In this step, the researcher should delimit his or her problem by choosing in terms of class, subject, section, period etc. This delimitation will help to study the problem specifically.

3.2.6 FORMULATION OF HYPOTHESIS

By analyzing the hints or assumptions and possible causes of the problem, the researcher must try in this step to apprehend the possible solutions of the problem studied.

3.2.7 METHODOLOGY IN TERMS OF RESEARCH DESIGN

In this step, the methodology in terms of research design is to be finalized. Methodology of the research usually comprises of the procedures and steps to collect data properly from a representative sample relevant statistics or qualitative way to get a conclusion or solution of the problem in a scientific and feasible way. The nature of the methods and designs in action research is very much flexible and can be changed according to the need of the researcher in the changing scenario or situation.

3.2.8 SAMPLING

In educational action research, the problems are very much related to the school or academic institution where the researchers are serving. Therefore, in most cases, the sample must be the students of the school related to the problem.

3.2.9 TOOLS PREPARATION

To collect data, the researcher must prepare a relevant tool which may be achievement test, set of questions questionnaire, opinionnaire, observations, and so on. Here lies scientific intuition of the researcher in choosing items to collect valid data. The teacher or the researcher must be very much familiar with the different type of standardized tools and techniques in order to choose the appropriate tool and technique for data collection.

In seeking evidence of his/her practice or the effectiveness of a change in practice, a teacher needs to look at it from different perspectives; he/she needs to employ a triangulation of methods. This is a simple principle, involving the careful choice of a range of data gathering techniques, each of which might illuminate a different aspect of the same issue. According to W.A. Stephen (2006), action researchers may thus use any of the following to help them reflect on their concern.

- observation schedules of children, students or themselves
- audio and video tape recording
- structured or semi-structured interviews
- class records
- statistical indicators
- field notes
- an analytic memo
- sociometry
- photography
- repertory grids
- questionnaires

3.2.10 DATA COLLECTION

By using the teacher made tools and scientific techniques or any other reliable means as mentioned above data may be collected from students responses recorded as raw score or primary information about the problem. Different types of student/school data are enlisted below.

- Achievement (e.g., report card marks, EQAO assessment results, PM Benchmarks, DRA)
- Demographic (e.g., gender, SES indicators, primary language spoken at home, mobility)
- Perceptual (e.g., student, parent & staff surveys re: safety, satisfaction, culture)
- School-Based (e.g., absenteeism, suspensions, behavioral incidents)
- Behavioral Observation (e.g., on-task behaviour, frequency of aggressive acts)

3.2.11 ANALYSIS

Analysis of data can be done in two different ways; the first one is quantitative and the second one is qualitative. Quantitative analysis is done with some descriptive statistics or inferential statistics to justify the hypotheses and objectives determined. Qualitative analysis needs logical decision which helps to get a solution of the problem studied by the researcher.

3.2.12 INFERENCE AND CONCLUSION

After getting a calculative logical analysis of the data collected about the problem studied, the researcher must draw a conclusion or inference regarding the solution as hypothecated at the beginning of the study. This may be in the form of new information, knowledge or solution.

3.2.13 Designing Intervention for the Next Loop of the Spiral of Activity

After getting the solution of the studied problem, the researcher must apply the new method of teaching or approach by which testing of obtainable solution has been possible, on the same or another sample/ population. In this way an appropriate solution may be obtained through iterations as the efficacy of new method or process will emerge.

3.2.14 Reporting of Research Result

In this step, the whole report is to be presented about the research from statement of the problem to the conclusion so that this recorded phenomenon may be utilized by all other institutions for solving their own problems.

References

[1] L. Koul, M.L. Koul, S.K. Prasad (Ed) (2006); Innovative Monitoring Strategies for Quality Elementary Education, IGNOU, DEP-SSA, New Delhi.

[2] W.A. Stephen (2006); Action Research in Education, University of Plymouth.

CHAPTER 4

Format of Action Research Proposal and Report Writing

4.1 INTRODUCTION

Preparation of a research proposal is an important step in the research process. A research proposal is a detailed description of a proposed study designed to investigate a given problem. It is analogous to preparation of a blue-print as required in constructing, say, a civil structure. A blue-print gives a planned outline of the entire work to be done in constructing that civil structure. Likewise a research proposal is an action plan document. This chapter will strive to elaborate the outline of the steps and the task to be performed in conducting the research work.

Now a caveat to be mentioned, may not be out of place here. All the following nitty-gritty of Research Proposal and Reporting are placed here for the researcher to have a comprehensive view of the field. It by no means suggests that all these steps described are to be followed to their letters while conducting an Action Research. There are examples of some very illuminating action research findings which have only partially followed – if at all – the steps described below. It devolves on the researcher to pick and choose the appropriate steps as necessitated by the problem to be researched on.

4.2 PREPARING THE PROPOSAL

The practitioner who desires to conduct an action research may have to seek permission for the research and may also seek resource support from the appropriate authority. For this the researcher has to prepare a research proposal. Here a general format of research proposal is presented which includes the following.

1. **The Title of the Study** – After identifying the problem areas of work, the practitioner should state the problem in clear cut and precise term, without any ambiguity.
2. **Statement of the Problem** – It should be comprehensive and easily understood by the reader. The statement is basically the title of the problem. This statement should not be unnecessarily lengthy. Typically a title of a problem is stated within 15-20 words which must indicate i) the problem; ii) the specification of area & iii) the target group.
3. **Introduction** – Generally the rationale for undertaking the study is provided in this section. Here the researcher has to describe briefly the situation as it exists leading to the problem identified for investigation. It means the investigator has to state and justify the reasons for which the solution to the problem is being undertaken. In other words, the background or the context due to which the investigator has felt the need for investigating the problem is to be stated.

4. **Statement of Problem** – The problem which is addressed through this study and its limitations are to be stated here. The research question should be mentioned properly.

5. **Consultation and Literature Review** - A brief review of related studies may be given, although in action research this step is under the discretion of the researcher.

6. **Objective of the Study** – The objectives of the study should be mentioned in the form of brief and specific statement.

7. **Formulation of Hypothesis** – Assumption of the outcome of research question should be stated precisely in the form of affirmative or negative statement.

8. **Methodology in Terms of Research Design**

   (a) *Subjects & Sampling Procedure* – In action research, unlike formal research, sampling is not done. For example, in a typical study all students, or students having a certain difficulty in a class, will be taken as subjects for the study. Generally in action research instead of random sampling incidental or purposive sample is used.

   (b) *Instrument/Tools* – In this stage, the researcher decides which instruments/tools/ materials are to be used in the study. The nature and use of such tools have to be relevant and appropriate of the task as indicated in the objectives of the study. Tests, questionnaires, observation schedule, tasks or other tools that are to be used in the study need to be specified in this section.

(c) *Procedure of Data Collection* – Here the investigator will describe in detail the techniques to be used for data collection directly or indirectly, or both.

(d) *Data Analysis* – At this stage description of statistical techniques, likely to be used, are to be indicated. Observation of students' behaviour in the classroom shall be used as supportive evidence in interpreting the result. Statistical techniques to be employed for data analysis should be mentioned. Qualitative data will be analyzed in logical manner to be mentioned.

(e) *Time Schedule* – It should include the major activities or phases of the proposed study like preparation of teaching-learning materials, preparation of achievement test, teaching and testing, data analysis and report preparation. For completion of all above task, time schedule should specify total duration in terms of exact month/week/days.

(f) *Budget* – Although action research is not cost-intensive, some minimum expenses in preparing teaching-learning materials, report preparation, traveling expenses, expenses toward consultation with experts/resource persons etc. may be proposed in this stage.

(g) *Conclusion* – Finally the researcher will prepare a report of the project for others, having interest on the issue, to know. It should reflect on how the result of the study can be utilized in other similar situations for improving the existing practices. If the action research proposal is to be submitted to some funding agency for their acceptance and funding, it should be completed as per the proposed time schedule.

4.3 FORMAT OF ACTION RESEARCH REPORT

After completion of the research work that is data analysis and interpretation of the findings, the total exercise has to be presented in the form of a research report. The report records all events of the study and is used to communicate the results to the stakeholders. Documenting and disseminating are the two major purposes of the research report. Though there is ample of scope of variation in design of research report, here we are trying to present a generalized format of the research report which includes the following.

1. **The Title of the Study** – It is quite like the statement given in proposal but that may be changed, if needed, in consonance with findings.
2. **The Abstract** – An abstract of the study may be given in a paragraph within 150 to 200 words. It contains a brief summary of the whole study may be with key words.
3. **Introduction/Background** – Like proposal generally the rationale for undertaking the study is provided.

4. **Statement of the Problems** – The problem of the study with its limitations and delimitations are to be stated. Here the research question is to be mentioned properly.
5. **Brief Literature Review** – Only relevant research study should be mentioned.
6. **Methodology** – Method of study includes the following.
    - a. Subjects
    - b. Instruments / Tools
    - c. Procedure of data collection
    - d. Result with their interpretation
    - e. Data analysis
    - f. Inferential discussions
    - g. Suggestions and further recommendations
    - h. References

The above steps are elaborated below.

A) *Subject/Sample* – Type and size of sample taken for the study is to be specified.

B) *Instrument/Tools* – The tools and materials used in the study are to be briefly mentioned.

C) *Procedure* – The procedure followed in collecting and analyses of data are to be systematically presented.

D) *Result and Interpretation* – The results of the study are to be presented accompanied with tables, graphs, figures, charts etc.

E) *Analysis of Data and Other Observations* – The results are to be analyzed in terms of objectives and/or hypotheses explaining the circumstances in which this could happen and whether these corroborate or contradict other studies in the particular area.

F) *Discussion and Conclusion/Inference* – The ultimate findings with discussions are to be discussed in respect to data analysis.

G) *Suggestions/Recommendation* – The implications of the study and its utility in solving the relevant problems or improving the existing practices should be given.

H) *References* – The list of references used in the study is to be given at the end of the report following the international norms or the norms specified by authority concerned.

READING REFERENCES

[1] Best, John W. (1990), Research in Education (3rd ed.), Prentice Hall India Pvt. Ltd., New Delhi.

[2] Corey, Stepen M. (1953), Action Research to Improve School Practices, Bureau of Publication, Teacher College, Columbia University, New York.

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[4] Mertler, Craig A. (2006), Action Research- Teachers as Researchers in the Classroom, Sage Publication, New Delhi.

[5] NCERT (2003), Action Research Hand Book for Primary Teachers, New Delhi.

CHAPTER 5

Tools and Techniques of Action Research

5.1 INTRODUCTION

In previous chapters, we have already introduced the nature and characteristics of action research and now we are also acquainted with the sources of research problems, how to formulate the problems and action hypothesis, and methods commonly used in action research. In this unit, we shall discuss about the construction of various tools and their uses in data collection. A teacher, who performs as an action researcher, is expected to construct and use certain tools and that are easy to construct and to use. Our discussion in this unit will be confined to those tools and techniques that are commonly used in action research.

5.2. TOOLS COMMONLY USED IN ACTION RESEARCH

A researcher is supposed to use many data gathering tools for the collection of information or data. Each type of tool is appropriate for the collection of certain type of evidence or information. Hence the researcher has to select the appropriate tools for testing of the hypothesis. The researcher may also need to customize the tools, or even may have to construct his/her own tool. Selection of tools is dependent on the nature of problem and the plan to carry out a particular study. A teacher, while collecting information on cleanliness of her students can simply employ the technique of observation. It may further be noted that most of the tools and techniques used in basic/applied research may also be used in action research. However there are some tools and techniques which are most commonly used in action research. The data gathering tools may commonly be divided into two categories as listed below:

- Qualitative Data Collection Techniques &
- Quantitative Data Collection Techniques.

All these different data collection techniques are briefly discussed in the following Section.

5.3. QUALITATIVE DATA COLLECTION TECHNIQUES

It bears recall that qualitative data are narrative in nature that reflects the data are words. Those may be collected using a variety of techniques. We have to keep in mind that the qualitative data will always consist of descriptive, narrative accounts.

5.3.1 OBSERVATION SAMPLING

We, the human beings, are constantly watching things around us. The teacher also watches her students. However, these observations are mostly in a habitual, haphazard manner which seldom merits to be regarded as an observation. Observation as a means of collecting qualitative data involves carefully watching, and systematically recording what was going on in particular setting (Schmuck, 997; reported in Mertler, 2006, p 93).

Classroom observation can be structured, semi-structured or unstructured. Structured observations typically require the observer to look for specific set of behaviours, reactions and interactions. It is often difficult to conduct structured observations since many other things are going on in a classroom where observations are being made. Unstructured/semi structured observations allow the teacher/researcher the flexibility to attend to other events or activities occurring simultaneously in the classroom.

Observations can also be participatory or non-participatory. These are marked by the fact if the researcher is a member of the group being observed, or she is in a position which is not affecting the group's activity. Classroom observations are usually recorded in form of field notes. When recording field notes one may divide each entry into observation and interpretation of what has been observed. Apart from written notes, audio/video tapes can be used to record observations as well, although all these means have their own limitations.

5.3.2 INTERVIEWS

An alternative way to observe people is to directly ask them questions. Interviews are conversations between the teacher/researcher and participants in the study in which the teacher poses questions to the participants. An interview guide containing specific or general questions is to be prepared to facilitate the interview. Like observations, interviews can be structured, semi-structured or open ended. While developing interview guides the questions are to be kept brief, clear and in simple language, keeping both base and optional questions prepared in the guide.

Open-ended interviews provide the respondent with only a few questions, very broad in nature. The purpose is to gather different kinds of information from different individuals depending on how each one interprets the question.

Focus Group Interview (FGI) is generally conducted with a small group usually not more than 10 – 12 people (Leedy and Ormond, 2005). FGIs are especially useful when time is limited and because people often are comfortable talking in a small group. When conducting FGI, it is important to ensure that each participant is given opportunity to share his/her views (Mills, 2003).

A few thumb rules for conducting an interview are jotted in the following :

- Ask only one question at a time.
- Repeat a question if necessary.
- Try to make sure that the subject understands the question.
- Observe the subject's facial expression, gestures and tone of the voice.
- Listen and note carefully the answer given by the subject.
- Allow the subject sufficient time to answer, without letting the interview drag.
- Avoid suggesting answer to the questions.

- Don't show signs of surprise, shock, anger and other emotions if unexpected answers are given.
- Maintain a neutral attitude with respect to controversial issues during the interview.
- Take note of those answers which seem to be vague, ambiguous or evasive.

5.3.3 EXISTING DOCUMENTS AND RECORDS

Often action research necessitates the gathering of data that already exists. The existing documents and records can provide information which is relevant to issues and problems under investigation. For example, in the context of classroom action research relevant documents may include textbooks, attendance records, test scores – both previous and current, records of discipline, cleanliness, school events, minutes of faculty / SMC meetings etc. Classroom artifacts provide valuable information for certain action research problems. These include any visual or written data contained within the classroom. For example, student portfolios or products are prime classroom artifacts.

5.4 QUALITATIVE ANALYSIS OF DATA IN ACTION RESEARCH

Analysis of qualitative data means studying the organised material in order to discover inherent facts. The mostly used analyses, in analysing the qualitative data, are content analysis, inductive analysis and logical analysis. The purpose of data analysis is to obtain usable and useful information irrespective of whether the data is qualitative or quantitative. The steps below describe the basic elements of qualitative data analysis and interpretation.

- **Step 1** – For qualitative data analysis, you may have to read and re-read the text. If you have tape recordings, you have to listen to them several times. Write down any impressions you have as you go through the data. These impressions may be useful later.
- **Step 2** – Review the purpose of evaluation and what you want to find out. Identify a few key questions that you want your analysis to answer. These will help you to decide how to begin. These questions may change as you work with the data but will help you to get started. In this approach, you focus the analysis to look at how all individuals or groups responded to each question or topic for a given time period or event.
- **Step 3** – To bring meaning to the words before you, you have to identify themes or patterns through ideas, concepts, behaviours, interactions. Then you have to categorise them into coherent categories that summarise and bring meaning to the text.
- **Step 4** – As you organise the data into categories either by question or by case – you will begin to see patterns and connections both within and between the categories. Assessing the relative importance of different themes, may be important to your analysis.
- **Step 5** – A good place to start is to develop a list of key points or important findings you discovered

as a result of categorising and sorting your data. Develop an outline for presenting your results to yourself or for writing a final report. In this way, we can interpret the qualitative data and can use this to achieve our desired goal.

Qualitative research offers opportunities for describing or narrating the events, settings, contexts. It helps in deeper understanding of the persons being studied. Qualitative analysis consists of in-depth open ended interview, direct observations and written documents. This analysis can be done either in isolation or in combination with quantitative data.

5.4.1 Qualitative Data Analysis and Interpretation

There is a challenge in making sense of the massive data, eliminate the "noise" from "signal", identify significant patterns and construct a framework for communicating the essence of what the data reveals, providing interim "snapshots" of the studied area at appropriate places. This can be done as in the following steps:

1. Organizing the data
2. Description of the data
3. Interpretation
4. Establishing "Trustworthiness"/Validation

The above mentioned points are elaborated below.

a. Organizing the data : Qualitative data sometimes becomes voluminous by way of compiling the observations, interviews and documents. The method of organizing data depends on the research strategy, purpose of the study and the data collection techniques used.

b. Description of the data : The research describes the various pertinent aspects of the study including the settings, the individuals being studied, the purpose of any activities examined, the viewpoints of participants, and the effects of any intervention on the participants.

c. Interpretation : It entails explaining the findings, answering "why" questions, judging significance to particular results, and putting patterns into an analysis framework. Hence the skills, biases and knowledge than on conclusions are very important.

Trustworthiness/Validity : Although some qualitative researchers have argued that the term validity is not applicable to qualitative research, but at the same time, they have realised the need for some kind of qualifying check or measure for their research. For example, Creswell & Miller (2000) suggest that the validity is affected by the researcher's perception of validity in the study and his/her choice of paradigm assumption. As a result, many researchers have developed their own concepts of validity and have often generated or adopted what they consider to be more appropriate terms, such as, quality, rigor and trustworthiness (Davies & Dodd, 2002; Lincoln & Guba, 1985; Seale, 1999; Stenbacka, 2001). So an important issue emerges in qualitative research - its trustworthiness (also known as credibility and/or dependability). In quantitative studies, this is referred to as 'validity'. There are many different ways of establishing trustworthiness, including: member check, interviewer corroboration, peer debriefing, prolonged engagement, negative case analysis, auditability, confirmability, bracketing, and balance. Getting help from a peer can help. When another teacher/practitioner looks into the data, does (s)he come up with a similar observation/conclusion? Cross-validation is a popular validation strategy in qualitative research. It's also known as triangulation. In triangulation, multiple data sources are analyzed to form a final understanding and interpretation of study results. Through analysis of methods, sources and a variety of research theories, cross-validation can make a powerful contribution to support existing research, hypotheses and researcher hunches by presenting interpretations from multiple perspectives. The five sources of evidence of validity are based on the following: test (or instrument) content, response processes, internal structure, relations to the other variables, and consequences of testing. In classroom specific cases, the teacher needs to be more concerned with evidence of validity based on test/instrument content.

5.5 QUANTITATIVE DATA COLLECTION TECHNIQUES

In contrast to qualitative data, quantitative data are numerical. Anything that can be quantified – i.e. counted, calculated, tallied and rated – can be considered quantitative data. Quantitative data collection techniques include surveys, questionnaire, checklists and rating scales, as well as tests and more formal types of measurement instruments.

5.5.1 QUESTIONNAIRE

Questionnaire, as a research instrument, is based on three assumptions as enlisted below :

The respondent

- can read and understand the question.
- possesses the information needed to answer the question.
- is willing to answer the question honestly.

What we plan to include in questionnaires should be limited by

- the purpose of the study – Do not ask a question if you do not know in advance how to process the answer (research questions, hypotheses)! – Think about key questions of primary interest.
- what can reasonably be asked from the respondent – Think about the sensitivity & "delicacy" of the question.
- time constraints.

Think before asking a question :

Questionnaire, thus, is a systematic compilation of questions that are administered to a sample population from which the information is sought. Questionnaires can be classified in terms of the nature of the nature of the questions which are used. The questions may be of close-ended or open-ended in nature. Either of these types or both in combination may be used.

For preparing a technically correct questionnaire a researcher may employ the following thumb rules :

- The language of the questions is simple, clear and addresses a single issue at a time.
- Avoid questions with double negatives.
- For close-ended questions provide for systematic quantification of responses.
- Questions are to be presented from general to more specific responses.
- The responses should be easy to tabulate and interpret.

5.5.2 PSYCHOLOGICAL TESTS

Psychological Tests are among the most useful tools in educational research. These tests have been devised to measure behavior in a standardized way for the purpose of selection, classification, prediction, guidance and evaluation. As a researcher the teacher/ practitioner can develop her own non-standardized test. However, in a standardized test each item, with their scores are carefully analyzed. Their validity and reliability are established by careful statistical controls. The content, administration, scoring and interpretation are standardized. Popularly, there are five major standardized tests used in research which are listed in the following :

a) Intelligence Test or General mental Ability Test

b) Test of Special Ability or Aptitude

c) Test of Creativity

d) Test of Attainment

e) Test of Personality Measures.

5.5.3 CHECKLIST

A Checklist is a list of behaviors, character, skills or other entities that a researcher is interested in investigating. A checklist only presents a dichotomous set of response options, instead of indicating extent, degree or amount of something. It can only indicate if a behavior or characteristic is observed or not. Hence the checklists are faster approaches for the teachers/ researchers to use than, say, surveys or rating scales.

5.5.4 OPINIONNAIRE OR ATTITUDE SCALE

Opinionnaires are where data are collected in the form of expressed opinion of individual. Opinion is what a person says about his attitude towards some phenomenon. The only means of inferring or estimating a person's attitude or belief is a sample of his expressed opinion, scored in answer to a questionnaire or reaction to certain statements. Several methods are used in this area. As a general rule of thumb, the researcher after collecting statements, both favorable and unfavorable, should arrange them in a random order irrespective of their favorable or unfavorable indications.

5.5.5 RATING SCALE

Rating is a term to express opinion or judgment regarding some situation, object or character. Opinions are usually expressed on a scale of values. Hence rating is a judgment of one person by another. In circumstances when quality is difficult to measure objectively two essential conditions become necessary for a proper functioning of rating scales. First, the Rating Scale should be as clear and useable as possible; and second, the Rating Scale depends heavily on the abilities of the individual researcher who uses it. Rating Scales are appropriate when asking individuals to respond to a set of questions where their responses indicate the strength (viz. extent of agreement, level of frequency, degree of understanding) of that response. A number of rating techniques have been developed which enable the observer to ascribe numerical values or rating to their judgment or behavior. These are listed below :

- Numerical Scales
- Graphic Scales
- Standard Scales
- Rating by Cumulative Points
- Forced choice rating.

5.6 QUANTITATIVE METHODS OF DATA ANALYSIS

The organisation of quantitative data includes editing, coding, classification and tabulation.

1. **Editing** – Editing is a process of examining the collected raw data to detect errors and omissions and to correct these when possible.
2. **Coding** – Coding refers to the process of assigning numerals or other symbols to answers so that responses can be put into limited number of categories.

3. **Classification** – Classification means dividing the raw data into different homogeneous categories, classes, groups or heads on the basis of some common characteristics so that we may find some meaningful relationship. This can be done in two different ways:
    - On the basis of descriptive characteristic of the sample such as gender, literacy etc.
    - On the basis of the numerals such as age, weight, height etc.
4. **Tabulation** – When a mass of data has been assembled, it becomes necessary for the practitioner to arrange the same in some kind of concise and logical order. It is an essential process that provides us with the basis of various statistical treatments of the tabulated data. Tabulation can be done both by hand or by mechanical or electronic devices.

5.6.1 ANALYSIS AND INTERPRETATION OF DATA

The quantitative data can be analysed with the simple statistics such as percentage, simple frequency tables or by calculating simple, descriptive statistics. For this reason a practitioner must have some knowledge of basic statistical concepts.

1. **Variables**

(a) *Numerical measurements* – Person's age or weight, size of a family, numbers scored by the students.

(b) *Non-numeric measurement* – Position on a scale indicating a level of agreement.

(c) *Continuous data* – Measurement that can take any value within a certain range, for example time, age & weight.

(d) *Discrete data* – Measurements that can take only known discrete values e.g. the number of rooms in a house, the number of children in a family.

2. Nominal Data

Numerical values are assigned to categories as codes e.g. in coding a questionnaire for computer analysis, the response 'male' might be coded as '1'; and 'female' as '2'. No mathematical analysis is usually possible and no ordering is implied.

3. Ordinal data

Numerical values are assigned in accordance with a qualitative scale e.g. in coding a questionnaire for computer analysis, the responses 'very good', 'good', 'poor' and 'very poor' are coded '4', '3', '2' and '1' respectively.

5.6.2 STATISTICAL TOOLS AND TECHNIQUES ATA

Several types of statistical measures are used in describing and analysing the data in a meaningful manner.

1. **Measures of Central Tendency :**
   - a) *Mean*
   - b) *Median*
   - c) *Mode*
2. **Measures of Dispersion :**
   - a) *Range*
   - b) *Variance*
   - c) *Standard deviation*

3. Measures of Relationship :

a) Coefficient of correlation

T-test and other parametric or non-parametric tests can be used for inferential data analysis. Here are some formulae for calculation of mean, median and standard deviation.

Mean (M) = fx ÷ n, f is the frequency.

Variance = $\frac{fx^2N}{} - M^2$, if data is grouped, x is the middle value of the classes and N is the total frequency.

Standard deviation = Square root of the variance

*Mode = 3 Median – 2 Mean

*(*Note: The above is an empirical relationship, exceptions to which are also there.)*

Example : Find mean, median, standard deviation from the following grouped data

Class	Frequency
1-5	8
6-8	7
9-12	4
13-20	1

Solution :

Midpoint	Frequency
3	8
7	7
10.5	4
16.5	1

Midpoint is x

$fx = 8.3 + 7.7 + (10.5).4 + 1.(16.5) = 131.5$

$fx/n = 131.5 / 20 = 6.575$ = Mean

$fx^2 = 8.\ 3^2 + 7.\ 7^2 + 4.\ (10.5)^2 + 1.\ (16.5)^2 = 1128.25$

$fx^2/n - M^2 = 1128.25/20 - (6.575)^2 = 13.181875$

Standard deviation = 13.181875 =3.63

To find the median :

Class Boundaries	Frequency	Cumulative Frequency
0.5-5.5	8	8
5.5-8.5	7	15
8.5-12.5	4	19
12.5-20.5	1	20

Now $n/2 = 20/2 = 10$

The 10th piece of data falls between cumulative frequencies 8 &15. Median(Q_2) is somewhere between 5.5 to 8.5.

$$\begin{array}{ccc} 8 & \underline{10} & 15 \\ 5.5 & Q_2 & 8.5 \end{array}$$

$(Q_2 - 5.5)/(8.5-5.5) = (10-8)/(15-8)$

$Q_2 = 6.35714$

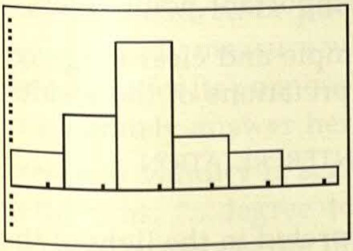
In an educational research program two groups of students are taught a topic in different ways. An experimental group uses a spreadsheet to explore the topic and a control group uses a more traditional pen and paper activity. Each group contains 20 students. At the end of the topic the teacher tests the two groups on their understanding of the topic and obtains the following data :

Experimental	5	11	25	33	35	40	45	46	52	55
	56	56	57	59	69	74	75	89	92	97

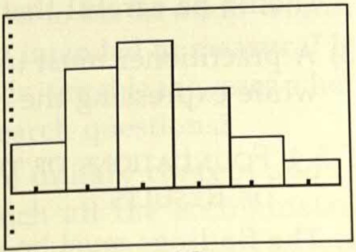
Control	33	39	44	45	45	46	47	48	49	49
	53	54	54	55	58	60	61	63	65	69

From the above collected data we can calculate :

	Mean	Standard deviation
Experimental	53.6	25.0
Control	51.8	9.1



Experimental Group



Control Group

How would you interpret these findings?

Sample analysis :

The researcher might be tempted to conclude that the experiment has had little or no effect on the performance of the experimental group as judged by the means. However the large difference in standard deviations might suggest that the experimental group is much more variable in performance than the control group.

The researcher might also be tempted to deduce that the experiment has turned some of the pupils off the task. Look at the three low scores!

5.6.3 CHARACTERISTICS OF GOOD INTERPRETATIONS

Following are the characteristics of good interpretations.

1) The interpreter must able to check his/her own bias and subjectivity while interpreting the result.
2) We must not stress on any irrelevant point and the interpretations must be to the point. Also we should be careful that no important point is left.
3) A practitioner must use simple and clear language while expressing the interpretations of the results.

5.6.4 FOUNDATIONS OF THE INTERPRETATION OF RESULTS

1) The findings must be interpreted in the light of the problems formulated by the teacher to study.
2) Hypothesis is the tentative solutions to the research problems and is formulated before the data are

gathered. Interpretations should reveal whether the hypothesis is rejected or retained.

3) Various Statistical methods can be used for the research need of the practitioner.

4) Sometimes during conducting an action research study, the practitioner might see some unhypothesised relationship between variables that should not be ignored.

Analysis of data and interpretation process has a very important part in the action research process. The practitioner must use proper statistical method for interpretation of the results from the collected data and use these interpretations to overcome the problem faced by him/her.

5.7 VALIDITY AND RELIABILITY OF QUANTITATIVE DATA

Validity is an essential quality in quantitative research data and it reveals whether the data are in fact what they are believed or purported to be. In other words, did the study measure what it intended to measure? Is the tool fit for its purpose? Does it enable the researcher to accurately answer her research questions?

Presently validity is seen as a unitary concept and is defined as, "...degree to which all the accumulated evidence supports the intended interpretations of test scores for the proposed purpose." The five sources of evidence of validity are based on the following :

- Test (or instrument) content

- Response processes
- Internal structure
- Relations to the other variables and
- Consequences of testing

In classroom specific cases, the teacher needs to be more concerned with evidence of validity of validity based on test/instrument content. Reliability, another essential characteristic of quantitative data, refers to the consistency of the collected data. Three different methods are used for this; test-retest, equivalent forms, and internal consistency. Internal consistency is a statistical estimate of reliability of a test that is administered only once. For this reason, this type of reliability estimate is most useful for classroom teachers conducting research.

It must be borne in mind that reliability is a necessary but not sufficient condition for validity. In other words, *"A valid test is always reliable, but a reliable test is not necessarily valid."* (Metler & Charles, 2005).

5.8 OTHER INFORMAL TOOLS

There are a host of informal tools that are often used by an action researcher. These tools play a critical role in enhancing the quality of analysis and reporting and cross validation of data collected from various sources. Some tools are listed in the following :

- Diaries.
- Profiles (which provide views on a situation or person over time).
- Photographic evidence (for capturing situations

like pupil's work, pattern of social organization in a classroom, teacher student interaction, etc.).

- Audio/Video recording.

5.9 CHAPTER SNAPSHOT

It has been felt necessary after having discussed such intricacies of data analysis a snapshot of the chapter may aid the reader to recapitulate the following.

- Qualitative Data are narrative, appearing primarily as words.
- Qualitative Data are collected usually through observations, interviews or by obtaining existing documents or records.
- Classroom observations may be structured, semi-structured or unstructured, recorded in Field Notes.
- Interviews are typically formal conversations between individuals, which follow an interview guide. This guide may be structured, semi-structured or open-ended.
- It is important for teacher/researchers to establish the trustworthiness of data.
- Quantitative data are numerical and include just about anything that can be counted, tallied or rated.
- Checklists are a simple form of rating scales where only dichotomous responses exist.
- Tests and other formal instruments can be used as quantitative data, provided they are supplemented with other forms of data.

- Validity of quantitative data has to do with the fact if the data actually measures what it is intended to measure.
- Reliability refers to the consistency of quantitative data and it is determined statistically.
- A valid test is always reliable but a reliable test may not necessarily be valid.

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CHAPTER 6

Case Studies on Action Research in Education

In the previous chapters we have learnt different areas of Action Research. It is a spiral process of action, observation and reflection. It can be used in every sphere of life i.e. social, cultural, economic, occupational and educational. In the present context we shall focus on the educational aspects where Action Researches facilitate the teachers and teacher educators in solving – to varied extents - the problems while addressing issues in various programmes, to wit Universalization of Elementary Education (UEE).

Now we shall share two Case Studies of Action Researches in different district of West Bengal. A case study is an intensive analysis of an individual unit (e.g., a person, group, or event) stressing developmental factors in relation to context. Case Studies of Action research should be defined as a research strategy, an empirical inquiry that investigates a phenomenon within its real-life context. It includes quantitative evidence, relies on multiple sources of evidence, and benefits from the prior development of theoretical propositions. Case studies can be based on any mix of quantitative and qualitative evidence. The following is a synopsis of a study conducted by Salam S.N., et al [L. Koul, M.L. Koul, S.K. Prasad (Ed) (2006)].

6.1 REGULARISING THE IRREGULAR CHILDREN IN EROSION AFFECTED ZONES - A MICRO LEVEL ACTION RESEARCH IN WEST BENGAL

6.1.1 INTRODUCTION

The Murshidabad district is one of the oldest conurbations having its district headquarter at Berhampur, West Bengal. The district comprises of two distinct regions. It is separated by the Bhagirathi River. Ganga, Bhagirathi, Padma, and Jalangi are the main rivers which flow through the district.

The erosion is a seasonal phenomenon experienced during the monsoon in the months of June, July and September every year. The erosion has been the cause of major concern to the people living in the river front of Murshidabad. River Padma, damaged human settlements at Jalangi in 1994. It engulfed High Schools, Police Station, Gram Panchayat Office, Market Area and as many as 450 houses were submerged (The Statesman, 1994). Many families were left with hunger and starvation. It blocked the source of income and livelihood of the people in the area.

The erosion victims migrated to *Chars* (silted regions) losing everything to the river. The human life of *Chars* lacked basic amenities and facilities of sanitation, education, medical treatments, market and even drinking water. *Chars* area remained submerged during the rainy seasons.

Children of these neo-refugee families were also victimized in terms of education and other required facilities. It became very difficult for them to attend school regularly after crossing a long distance through the sands. A considerable number of affected children dropped out from the school. This distressing effect hampered the education of the children to a great extent.

6.1.2 IDENTIFICATION AND STATEMENT OF THE PROBLEM

Considering the critical scenario, District Research and Study Cell, Murshidabad in collaboration with State Research & Study Cell initiated an Action Research Project in this zone. Since the research team was not in a position to provide any financial support or to provide any permanent educational configuration, like – additional classroom, appointment of new teachers, it was decided by the team to work on the learning abilities among the children through the active involvement and participation of different stakeholders and community.

After initial survey conducted over three villages, it became quite apparent that the enrolled children were keen to attend the school on regular basis, but the main inhibiting factor was the distance and pertinent communication. Again the neo-refugees were suffering from financial constraints, which also had a great influence on the education of the children.

6.1.3 COLLECTION OF DATA

The information relating to the status of erosion affected families and the causes of long absenteeism were collected and presented as under :

Table 1 : Status of erosion affected families and children

No. of villages covered	No. of families covered	No. of families affected by erosion	No. of children enrolled in the school	No. of children affected by erosion	% of children affected by erosion
3	1944	799	740	365	49.32%

Table 2 : Status of erosion affected families and children

Occupational Status	Agri-culture	Petty Business	Service	Agri-cultural Labor	Non Farm La-bour	Total
Before erosion	40.29%	1.88%	0.88%	38.17%	18.78%	100
After erosion	5.28%	4.87%	0.88%	64.51%	27.48%	100

From Table 2 it is evident that how river erosion affected the occupational pattern of the people resided at the riverfront villages. A large number of families completely lost their cultivable land and changed to agricultural labourers and non-farm labourers from being cultivators. This also affected their family income and as a consequence the families were forced to engage their eligible children into different types of income generating activities.

6.1.4 CAUSES OF LONG ABSENTEEISM

The following factors were identified as main reasons of long absenteeism among children:

(i) Long distance from *Char* to school.

(ii) Boat fare.

(iii) Families are benefited financially by the children.

(iv) Lack of incentives.

(v) Problem of permanent settlements

(vi) Unfavourable school as well as classroom environment.

(vii) Problem of escorting.

The gender and caste wise distribution of long absentees are presented as under :

- 72.82% of boys and 70.34% of girls among the total boys and girls shifted to *Chars* were identified as long absentees.
- Among the Muslim community migrated in the *Chars,* the problem of long absenteeism was more acute. As 96.20% children belonging to these families were not attending the school regularly.
- The tendency of long absenteeism was much frequent among the children in Grade I.

6.1.5 METHODOLOGY

After collecting both household and school related data through an intensive survey an action plan was developed as the mode of indirect and direct initiatives over a three month period.

1. Formation of CLRC level Action Research Group:

   One Action Research Group was formed. It comprised of one district level officer, the concerned Circle Project Coordinator (CPC), all Resource

Teachers (R.T), elected members of the village, head teachers of the primary schools, one high school teacher, Pradhan of the respective gram panchayat and their field functionaries to implement, monitor and supervise the overall programme.

2. Establishment of Remedial Teaching Centre in the *Char* :

   One "Remedial Teaching Centre" was inaugurated for the indetified irregular children shifted to *Char* due to devastating river erosion for three months with the objective to bridge the learning gaps due to long absence. One local educated youth was delegated the teaching responsibility to teach the children and designated as 'Sahayak'. Local educated youth, willing to contribute to their village, came forward to help the children with poor learning achievement in their village. They used the methodology followed in the Bridge Course centres. One training programme was also arranged for 'Sahayaks' for better classroom transaction. The 'Sahayaks' also rendered their services as escorts. Teachers of the existing primary schools also attached themselves in this process and they also provided coaching to these children after school hours on rotation basis.

3. Activation of Village Education Committees :

   During preparatory phase, it was observed that the status of Village Education Committees (VEC) left much to be done. Educational reform without involving the community members seemed to be meaningless. So the process of activation of VECs was taken up. Meetings were held on every fortnight to develop the action plan as well as to monitor the prevailing situation and sharing the issues related to learning achievement. BSF personnel posted in this area were also involved in this process and took active part in campaigning activities.

4. They arranged for providing the boat fare from SSA for the *Char* children to cross the Padma.
5. Re-establishment of tube well in the *Char* near the remedial teaching center in convergence with the local Gram Panchayat (GP).
6. Providing all sorts of teaching materials like pen, pencils, erasers, exercise books and school bags to the identified children.
7. Organizing three cultural functions based on local specificity by the local artists during the three months Action Research Period.
8. Ensuring the regular supply of dry ration among the children interacting with the Block Level officials.
9. Formation of one effective monitoring mechanism.
10. The Research Team organized one Impact Study after three months.

6.1.6 IMPACT

Teachers, local administrators, stakeholders, BSF people and community members actively responded and contributed at different levels towards improvement in the prevailing educational scenario.

1) Children of the *Char* attended school on a regular basis with interest in comparison to the main land children.
2) The process made a great impact among the minority community children though it was not possible to cover all of them.
3) Grade (I) children which included 34.81% long absentees got reduced to 24.30%.
4) Overall achievement level of the children increased.
5) VEC members participated more actively in the local planning process.

The school benefited in different ways, including better environment, improvement in the classroom processes and also opened up proper communication channels between school and local community.

6.1.7 CONCLUSIONS

It was found that short-term project has obvious impact in a short run. In the *Chars* main problem was rehabilitation. No basic amenities were available in the *Chars* along with the minimum facilities for survival. Children of this zone were suffering from various problems, including education. Until and unless long-term strategies are formulated their actual conditions may remain the same. Education remained elusive to the children of *Char* who didn't have any permanent settlement.

6.2 A COMMENTARY ON THE STUDIES

Although the prior Action Research study was a result of concerted collaborative work[2] of practitioners from varied field of education it may bear recall that the present module has time and again stressed on liberating the practitioner so that (s)he is empowered to design his/her own study, however unorthodox it may seem, with the ultimate aim of enhancing the quality of teaching-learning process. This idea may be illustrated in the following example, where the researcher was a teacher, who observed certain processes for overall improvement of the system. The methodology and reporting techniques in the following study may not conform to all the technicalities discussed in the chapters before. But essentially this depicts the other aspect of Action Researches where procedural rigour was not of paramount importance in conducting the study.

6.3 IMPROVING CLASSROOM MANAGEMENT – DISCIPLINE OF THE STUDENTS OF CLASS IV THROUGH ACTION RESEARCH IN A SCHOOL OF KOLKATA

6.3.1 INTRODUCTION

Discipline is one of the important areas for the teachers to maintain for achieving timely educational goals. Discipline in a classroom aims at securing children's compliance with adult demands for which teachers often adopt approach of punishment. It is a very popular implement for influencing behaviour in schools. It does not generally motivate learners to improve their behaviour; it simply teaches them to avoid the punishment.

Students of Class-IV became violent and indisciplined inside as well as outside the classroom. The researcher was the Class Teacher (teaching Mathematics) in that Class. Teaching was his passion and he has always believed that unless teaching practitioners work out to find the solutions to the problems, reformation cannot take place in teaching practices. Initially he developed clear expectations and applied a range of rewards and recognitions for good behaviour as well as punishments for bad behaviour. But the feedback was not impressive. Before he began action research, he asked himself the following questions: What was his concern? Why was he concerned? etc. Initially he thought that the strategy of keeping discipline in the class was successful. But was it good at maintaining discipline? He guessed, yes; but from the students' point of view, it was not. Since for the last few months he observed that a few of the students were less participative in classroom activities and showed sign of disruptive behavior. This vital problem influenced the researcher to conduct the Action Research on these batch in Class-IV. The teacher researcher thought it would also help him to polish his classroom management skills.

6.3.2 PROBLEM IDENTIFICATION AND STATEMENT OF THE PROBLEM

Students of Class-IV became violent and indisciplined inside the classroom as well as outside the classroom.

Their behaviour created obstacles in classroom teaching-learning process and disturbed other students to concentrate in the classroom teaching.

6.3.3 OBJECTIVE OF THE ACTION RESEARCH

- To find out the reasons of violent nature among the students of class-IV.
- To assess self practices of maintaining discipline in the classroom and improve it.
- To identify the best practices for controlling the violent classroom through the spirals of Action Research.

6.3.4 METHODOLOGY

Method : Some innovative research method was adopted for solution of the problem.

Sample : Out of 42 students of Class-IV only 8 were disciplined and well behaved but the teacher selected all the 42 students of Class-IV as the target group for the Action Research because all student should be disciplined and non violent.

Strategies : At first the teacher tried to assess the reasons of violent behaviour by increasing the communications and contacts with the student, their parents and elders.

6.3.5 THE IDENTIFIED CAUSES OF INDISCIPLINE

1) Most of the students face serious family problem in their home. Their parental relationship cast adverse effects on their studies. Always these children

quarrel and fight among themselves. These children got irritable and became violent in the home and they brought the same practice in the school as well.

2) Most of them were low performers. They make themselves isolated from the classroom teaching learning process and always try to avoid any cantacts with the teachers and classroom activities.
3) They did not receive due attention from the teachers as well as from their better performing peers, so they brand themselves as ill-behaved, indisciplined lot of the school.

6.3.6 INTERVENTION

1) At first the teacher researcher communicated personally with each child and tried to motivate them positively. He organized a drama for the children which showed the bad impact of violence on the day to day life. Three children of Class-I participated to portray the sorrow and panic of the siblings.
2) In the second intervention the teacher researcher and his colleagues arranged a meeting for the guardians and explained the severe problem faced by the children in their home environment. Teachers also tried to make them understand how it would adversely affect their relations with the kids, and that this early childhood violence might lead them to become antisocial or criminal in future.

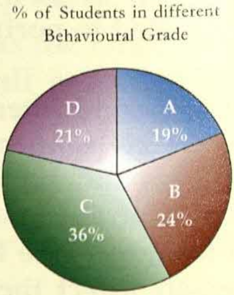
   In the second half of the meeting parents were given positive inputs and thinking to change their home atmosphere.

6.3.7 OBSERVATION

1) Since it was a well thought out, flexible and coordinated action plan, it helped to maintain discipline and it was found that when the punishment, harsh attitude and de-motivation were substituted with motivation and drama enacting, discipline improved in the classroom and student participation increased significantly.
2) After second intervention the parents of the children were motivated and they started playing active roles in motivating their children. Some of the parents suggested the teachers to arrange for some award for good and disciplined behaviour at the end of each year. This also acted as a key to make the children calm, disciplined and non-violent.

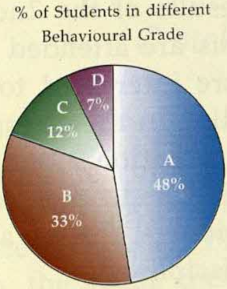
Before starting action research :

Grading of Behaviour	No. of Students
A	8
B	10
C	15
D	9
Total	42



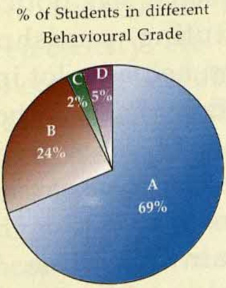
After implementing strategy 1:

Grading of Behaviour	No. of Students
A	20
B	14
C	5
D	3
Total	42



After implementing strategy 2:

Grading of Behaviour	No. of Students
A	29
B	10
C	1
D	2
Total	42



In this Analysis the following codes are used – A: Good Behaviour; B: Moderate Behaviour; C: Indisciplined; D: Violent & Bad Behaviour.

Reflection 1 :

The results of the 1st strategy indicates that the previous classroom discipline practices were unsuccessful. The students were more relaxed when the positive reinforcement was adopted. 76 % of the targeted students i.e. 32 students were more or less motivated to be non-violent.

Reflection 2 :

The results of the 2nd strategy indicates that if the students are attended and valued properly they will be more interested to be responsible and maintain discipline in the classroom. Teacher can't control the entire situation alone. If they are facilitated by the guardian and other community members the entire scenario will change and classroom will be managed and disciplined.

6.3.8 Conclusion

The teacher has noticed that positive reinforcement, substituting punishment and accepting students opinion helped a lot in maintaining discipline during the action phase. Although there are many more areas where the teacher needs to work, but being a reflective teacher, the researcher successfully improved the classroom situation by using revised strategies to maintain discipline. The process of designing the best intervention has not been completed. Many new ideas will have to be implemented to arrive at the best possible solutions.

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CHAPTER 7

Conclusion

7.1 PROCESS OF ACTION RESEARCH

The process involved in a classroom teaching-learning is a complex one. Let us reflect on a typical classroom scenario where the teacher teaches, say, Physical Science. Before starting with the focal theme for the day, say electromagnetism, the teacher explores whether his/her students are conversant with the common background concepts associated to the phenomena like magnetism, electricity etc. which will be required for his/her oncoming discourse on electromagnetism. The teacher may ascertain through verbal interactions or by using a short test (oral or written) that there are a few who have thorough knowledge of all background concepts, another few having a poor background concept while the rest lie somewhere in between. On a further detail inquiry, the teacher will also know that each of the learners has his/her own characteristic status of achievement and temperament to learn. These differences among students' learning are due the inherent uniqueness of each child. In spite of quite sincere effort from the teacher's part he/she finds a few who lag behind the rest.

Quite naturally after all the attempts from the teacher's end, he/she does not achieve his/her expected outcomes. In this scenario, the following questions may occur to his/her mind :

- Am I following a method inappropriate for these students?
- Are the concepts too difficult for the level of comprehension of these students?
- What are the typical difficulties of the students in understanding the concepts?
- Do these students have any inherent personality problem which affects their learning?
- Do their family problems interfere in their learning?
- Are the terminologies and/or materials used in teaching unfamiliar, too abstract or repelling?

As above, many other questions may arise in the teacher's mind and the **teacher wants to know the answers to improve his/her practices**. In this situation, the teacher may think to try out a method, chalk out a systematic design to follow, and on a trial basis implement his/her plan on the target group. After trial the teacher analyses the outcomes and infers on his/her findings. *Based on his/her inference, the teacher now modifies his/her teaching strategy for these students by innovating interventions, not hitherto practised on this sample of students.*

In other words, THE TEACHER IS ENGAGED IN CONDUCTING AN ACTION RESEARCH.

In this context, it is necessary to discuss the nature and characteristics of Action Research.

Action Research is any ***systematic inquiry*** *conducted by practitioners (in the present context they can be the* *teachers, administrators, counselors et al) who have perceived dissatisfaction about their conventional/regular practices and wish to know how they can perform better in their respective fields of activity.*

In the parlance of classroom teaching-learning process, Action Research is characterized as a research that is done *by* the teacher *for* herself - a systematic inquiry into her own practice. Hence, the problems in Action Research relate to *Actions or Practices* of teachers in classrooms/schools, thereby instilling flexibility & novelty in practice.

7.2 Purpose of Action Research

The cardinal objective of conducting an Action Research is to develop an insight for new skills/ approaches/techniques and solve problems with direct application to the classroom (in our case) intended for empowerment of practitioner. For a teacher there are three main purposes for conducting Action Research as listed in the following :

i. To inquire into the problems/deficiency in current practices and find probable solutions.

ii. To adopt new policies/practices in the school/ classroom.

iii. To study the efficacy of innovative practices which have direct applicability in the classroom environment.

7.3 Nature and Characteristics of Action Research

Research in any field of human endeavor contributes to the body of knowledge without the consideration of its immediate applicability in solving the problems that we confront in our daily life. While most of the pure researches are meant to contribute to expand theories Action Research, on the other hand, tries to solve the immediate problem of a practitioner and in that way, might be adding new practices or refining existing practices. The nature of Action Research especially those conducted in education is enlisted in the following.

7.3.1 Nature of Action Research in Education

Practice based – The problems of Action Research, without any exception, emerge from one's own practice; hence the outcomes of the Research help in improving the practice.

Relevant – Action Research is practical and directly relevant to an actual situation in the working environment of the teacher/practitioner.

Orderly framework – Action Research is carried out in an orderly framework for problem solving, which is superior to impressionistic fragmentary approach – quite commonly practised in education.

Empirical – Action Research relies on actual observation and behavioral data, and does not fall back on subjective opinions of individuals.

Short duration – In essence, Action Researches are short-term studies. A teacher can conduct the study by availing time from within the time of her classroom transactions.

Purposive – An Action Research is undertaken with a definite purpose in view, say, to solve a particular problem in hand.

Less expertise-intensive – Action Research doesn't require higher technology or higher technical knowledge for its conduct. The process of designing, conducting, analysing the data, drawing conclusions and reporting are very simple albeit logical. A teacher with a very short orientation can effectively conduct this research.

Simple analysis – Data analysis is quite simple and only requires a rudimentary knowledge of quantitative techniques. Often, a mere qualitative analysis serves the purpose.

Change-intensive – At each step of Action Research appropriate modifications may be made as is necessitated by the ground factors. So Action Research is quite flexible in accommodating changes in its procedure.

Immediate utility – The results of the study are immediately applied by the researcher/teacher in solving her problem.

7.4 STEPS OF ACTION RESEARCH

The following are the steps for conducting Action Research :

Identification of problem
Consultation and/or literature review
Defining a title of action research
Objective of the study

Delimitation of the problem
Formulation of hypothesis
Methodology in terms research design
Sampling
Tool preparation
Data collection
Analysis
Inference and conclusion
Designing intervention for the next loop of the spiral of activity
Reporting of research result

7.5 LIMITATIONS OF ACTION RESEARCH

While attempting to be systematic, Action Research lacks a scientific rigour for the following factors :

- **Situational objectives** : The objective(s) with which the Action Research is designed serve a very limited purpose of the practitioner and its result may not continue to be important beyond that time-space context. Therefore, the inferences from such research serve for a limited period in a specific context for a particular practitioner.
- **Results can't be generalized** : The findings of these researches help the teacher in solving the problem she is confronted with. These findings may not help another teacher in another situation. Thus, the inferences are case specific.
- **Weak design** : The overall design in any Action Research project is subject to several systemic lapses

over which the researcher has little control. For example, her objectives are situational, her samples are restricted/unrepresentative; while sometimes no sampling is possible, and finally, she has little control over the all the extraneous variables.

Considering the limitations we can conclude that while the findings of Action Research are useful within the practical domains of a given situation, these may not necessarily contribute to the knowledge of the general body of education.